PB90-162777

Superfund Record of Decision (EPA Region 5): Rose Township Cemetery Dump Site, Oakland County, Michigan (Second Remedial Action), September 1989

(U.S.) Environmental Protection Agency, Washington, DC

29 Sep 89

U.S. Department of Commerce
National Technical Information Service
NTIS

PB90-162777

United States
Environmental Protection
Agency

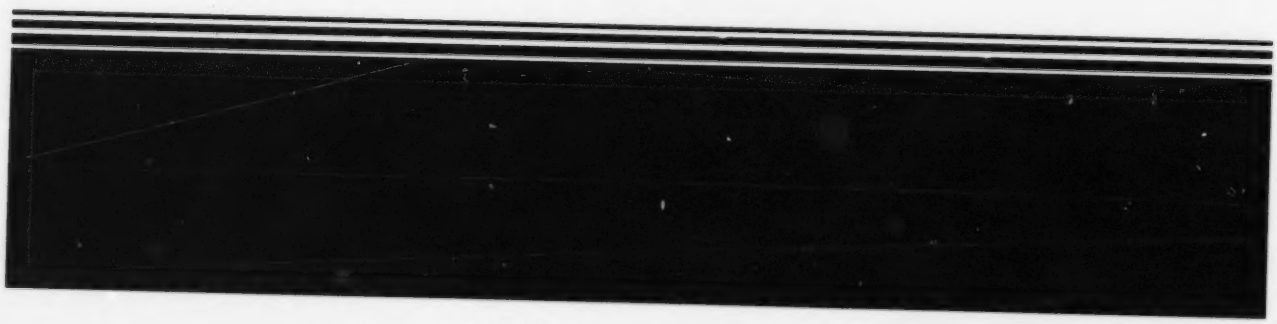
Office of
Emergency and
Remedial Response

EPA/ROD/R05-89/110
September 1989

EPA

Superfund Record of Decision:

Cemetery Dump, MI



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NATIONAL TECHNICAL INFORMATION SERVICE
SPRINGFIELD, VA. 22161

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. EPA/ROD/R05-89/110	2.	3. Recipient's Accession No. PB 90 162777 /AS
4. Title and Subtitle SUPERFUND RECORD OF DECISION Cemetery Dump, MI Second Remedial Action - Final			5. Report Date 09/29/89 6.
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address			10. Project/Task/Work Unit No. 11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460			13. Type of Report & Period Covered 800/000 14.
15. Supplementary Notes			

16. Abstract (Limit: 200 words)

The 4-acre Cemetery Dump site is a former sand and gravel pit in Rose Township, Oakland County, Michigan. During the late 1960s or early 1970s, approximately 300 to 600 drums, containing paint sludges, solvents, PCBs, and oils, were illegally dumped and buried onsite. A 1985 Record of Decision (ROD) addressed the soil cleanup which included excavation and offsite disposal of visually-contaminated soil and drum fragments. Soil which was not visually contaminated was sampled and backfilled with clean soil into the excavated areas. Subsequent soil and ground water sampling indicated that zinc contaminants in the ground water exceed the Federal secondary MCL, a nonenforceable standard based on taste and odor, not protection of health. Zinc contamination, however, is most likely a result of monitoring well construction materials. No other contaminants exceed Federal or State environmental standards.

The selected remedial action for this site is no further action because previous remedial activities appear to provide adequate protection to human health and the environment. Ground water will be monitored annually, and a 5-year review will be performed to ensure that the site continues to pose no threat to human health and the environment. There are no costs associated with this no action remedy.

17. Document Analysis a. Descriptors

Record of Decision - Cemetery Dump, MI
Second Remedial Action - Final
Contaminated Media: none
Key Contaminants: none

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 28
	20. Security Class (This Page) None	22. Price A03

(See ANSI-Z39.18) See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Rose Township Cemetery Site, Rose Township, Michigan

STATEMENT OF BASIS AND PURPOSE

The decision document presents the selected remedial alternative for the Rose Township Cemetery Site (the site) developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 and consistent with the National Oil and Hazardous Substances Pollution Contingency Plan to the extent practicable.

This decision is based upon the contents of the Administrative Record for the site.

The State of Michigan concurs with the selected remedial alternative.

DESCRIPTION OF THE REMEDY

The results of the Remedial Investigation (RI) show that the previous removal actions were adequate to protect human health and the environment, and that no unacceptable risk remains at the site. Therefore, the selected remedy for this site is "No Further Action."

DECLARATION

The selected remedy is protective of human health and the environment and attains Federal and State requirements that are applicable or relevant and appropriate to this site. The statutory preferences for cost-effectiveness, permanent solutions and alternative treatment technologies while applicable, do not need to be developed for the "No Further Action remedy." This remedy will not result in hazardous substances remaining on-site above health-based levels. However, as deemed prudent by the Michigan Department of Natural Resources and by the U.S. Environmental Protection Agency, the 5-year review will apply to this action.

9/29/89
DATE

Frank M. Covington
for Valdas V. Adamkus
Regional Administrator

Attachments:

1. Summary of Remedial Alternative
2. Community Relations Responsiveness Summary
3. Administrative Record Index

ATTACHMENT I

ROSE TOWNSHIP CEMETERY SITE

ROSE TOWNSHIP, MICHIGAN

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

SEPTEMBER 1989

Site Description and History

The Cemetery Site is located in the NE 1/4 of Section 27, Rose Township (T4N,R7E), Oakland County on Rose Center Road approximately 35 miles northwest of Detroit. The 4-acre site is a former sand and gravel pit which has been backfilled and is generally clear with low brushy vegetation and grass cover (See figures 1 and 2). Five domestic wells are located within 800 feet of the site perimeter which all derive drinking water from the same unconfined aquifer. The same aquifer is continuous in the Cemetery site area and is used as an area-wide water supply.

Michigan Department of Natural Resources (MDNR) and United States Environmental Protection Agency (U.S. EPA) first learned about the site from citizen reports alleging that approximately 300 to 600 barrels were dumped and buried in an old sand and gravel pit (Cemetery Site) in the late 1960's or early 1970's. Apparently, the original site owner was approached by Tucker Ford (a waste hauler) during this time period to bury some 500 drums at the Cemetery Site. The site owner allegedly refused, but the drums were disposed of anyway. The disposal of the hazardous wastes at the Cemetery Site was an illegal dumping incident. Consequently, no records are available describing the disposed materials.

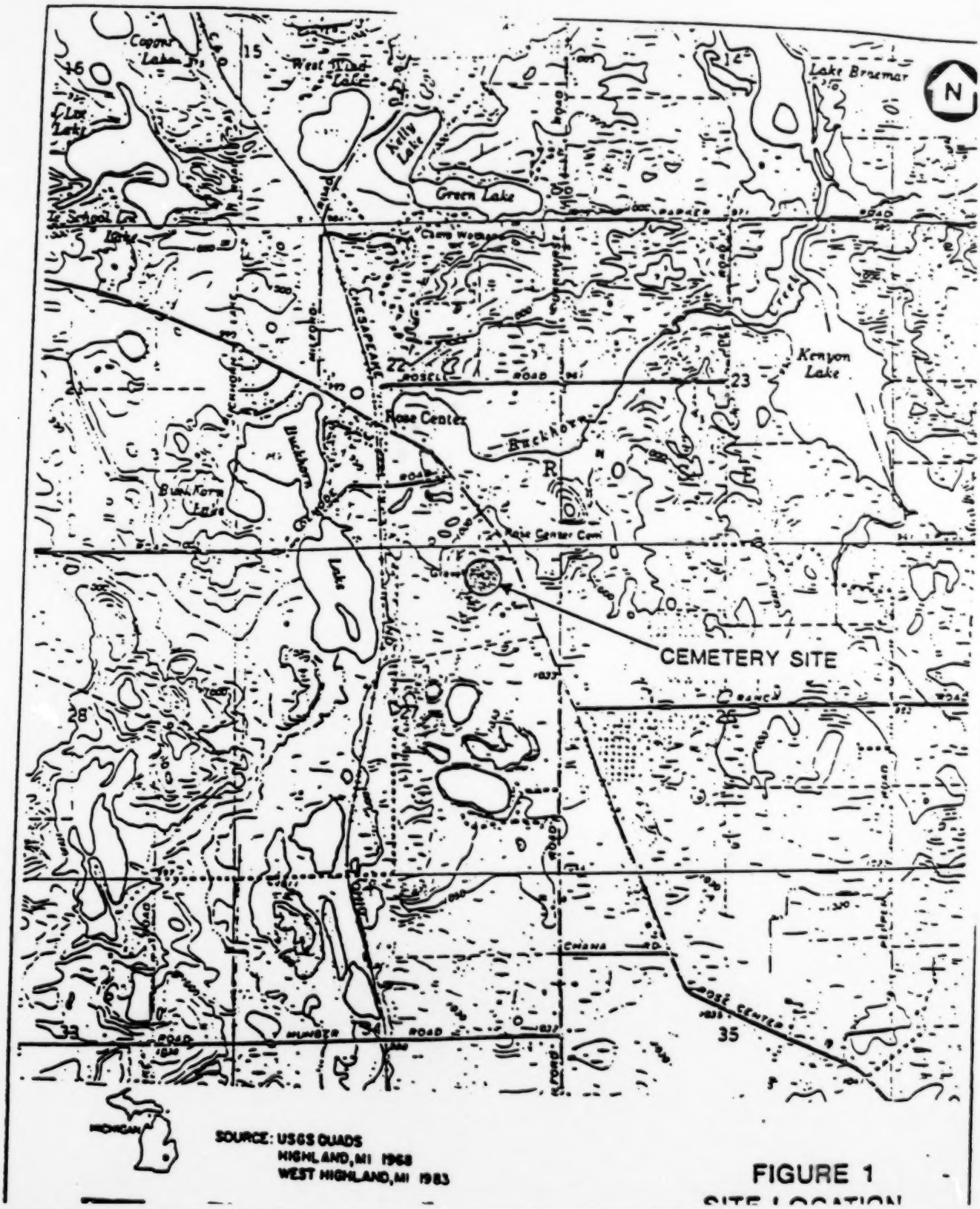
The parcel of land was subsequently subdivided and sold, and 4 residences were built on the site. Portions of drums were observed on the surface of the site and area residents have reported the discovery and removal of drum fragments and waste deposits encountered during gardening and other activities.

In September 1981, approximately 20 to 30 barrel fragments were excavated and transported off-site. Analysis of the barrel contents indicated the presence of paint sludges, solvents, polychlorinated biphenyls (PCBs) and oils.

The site was placed on the National Priorities List in 1982. The MDNR entered into a Cooperative Agreement with U.S. EPA to conduct the Remedial Investigation/Feasibility Study (RI/FS) and Phased Feasibility Study (PFS). The PFS led to an operable unit Record of Decision (ROD) signed in September, 1985. The operable unit Remedial Action (RA) began in 1988, and involved excavation of drum fragments and associated contaminated materials. The excavated soils were divided into a visually contaminated pile and a non-visually contaminated pile. Visually contaminated soils and drum fragments were loaded into trucks at a staging area in preparation for disposal. Approximately 10,000 cubic yards of visually contaminated soils were excavated from the site and disposed of at a facility licensed to accept hazardous waste. Soils excavated that did not appear to be visually contaminated were stockpiled on plastic sheeting at various locations on the site, and subsequently sampled. The Post-Remediation Site Assessment (PRSA) was performed after the operable unit RA in early to mid 1989 and consisted of sampling existing monitoring wells and private wells. In September 1989, the excavated pits were backfilled using the stockpiled soils along with the clean imported soils.

Community Relations History

In 1985, two repositories were set up in the area: Rose Township Hall, 2006 Rose Center Road, and the Holly Library, 1116 North Saginaw, Holly, Michigan.



SOURCE: USGS QUADS
HIGHLAND, MI 1968
WEST HIGHLAND, MI 1983

FIGURE 1
SITE LOCATION

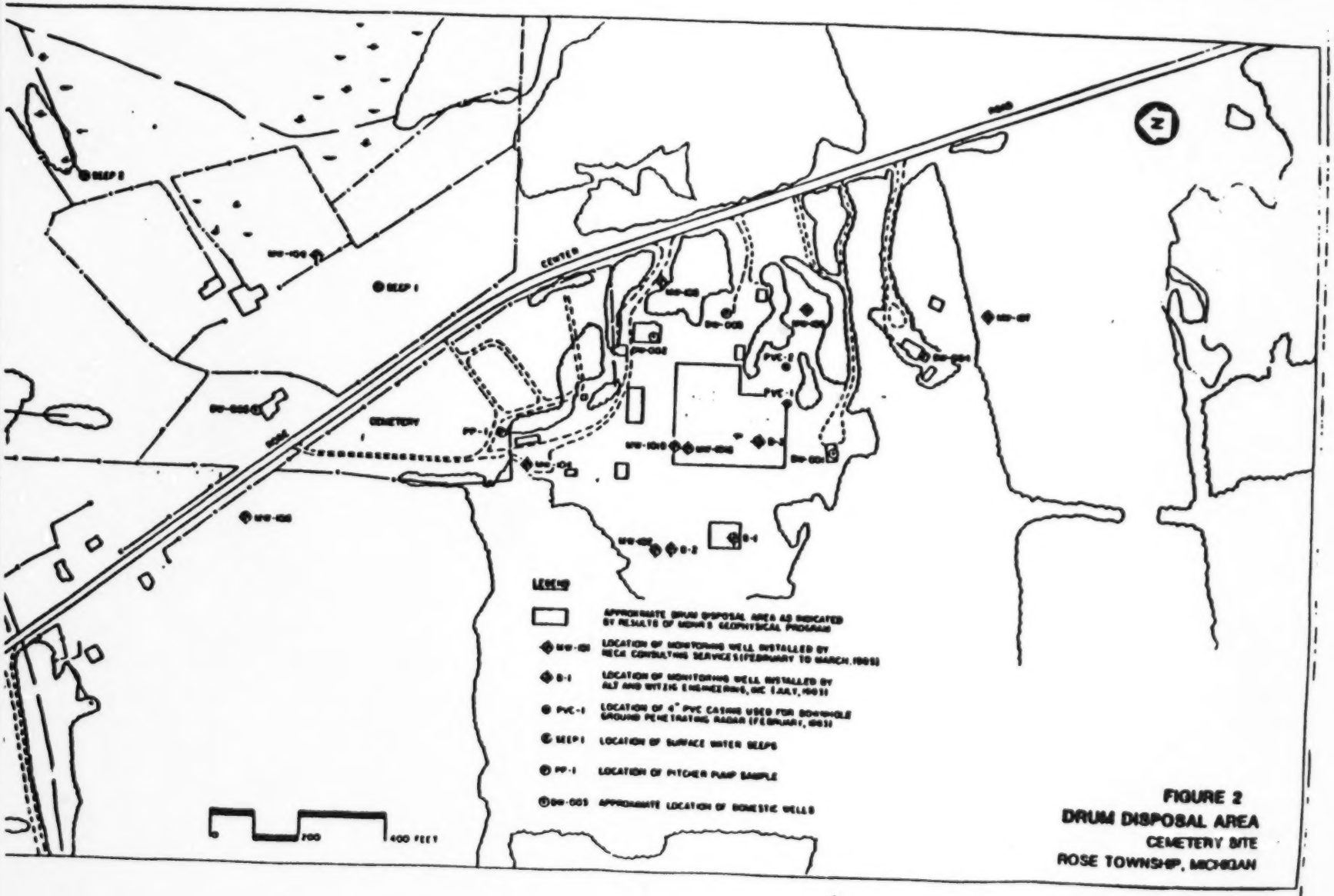

CEMETERY
N
LEGEND
APPROXIMATE DRUM DISPOSAL AREA AS INDICATED BY RESULTS OF MDNR'S GEOPHYSICAL PROGRAM
LOCATION OF MONITORING WELL INSTALLED BY MECA CONSULTING SERVICES (FEBRUARY TO MARCH, 1991)
LOCATION OF MONITORING WELL INSTALLED BY ALT AND WITZIG ENGINEERING, INC (JULY, 1991)
LOCATION OF 4" PVC CASING USED FOR BOREHOLE GROUND PENETRATING RADAR (FEBRUARY, 1991)
LOCATION OF SURFACE WATER SEEPS
LOCATION OF PITCHER PUMP SAMPLE
APPROXIMATE LOCATION OF DOMESTIC WELLS
200
400 FEET

FIGURE 2
DRUM DISPOSAL AREA
CEMETERY SITE
ROSE TOWNSHIP, MICHIGAN

Copies of the PFS were made available to the community on July 22, 1985. The MDNR issued a press release on July 26, 1985 which announced the availability of the study, opportunity to comment, and the schedule for the public meeting. The public meeting was held on August 1, 1985 at the Rose Township Hall.

To start the final ROD process, MDNR issued a press release on August 9, 1989. This publication provided notice of the August 23, 1989 Public Hearing and the period for submission of comments. On August 19, 1989 the Proposed Plan was distributed and placed into the repositories. The Public Hearing was held at the Rose Township Hall. Generally, the level of concern over the Proposed Plan was low. Their main concern had to do with the delisting process. Many people from the meeting expressed desire to accelerate the process and free their property from the stigma associated with the Superfund site. The public comment period was from August 14 through September 11, 1989. A response to comments received during the comment period is included in the Responsiveness Summary. The Administrative Record has been placed in the repository.

SITE CHARACTERISTICS

Site Geology

Subsurface conditions at the Cemetery site can be described as glaciofuvial sediments comprised of interbedded waterland deposits of sand and gravel, silt and sand, and local deposits of glacial till. The subsurface soils encountered during the drilling of boreholes at the site consisted primarily of fine to coarse silty sand and gravel. The overall formation appears to be a coarse textured glacial till, with a matrix that has variable amounts of cobbles and boulders. Except for sporadic occurrences of non-sorted clayey or silty lenses and a lack of stratification, it resembles an outwash deposit. There is no evidence of a continuous naturally occurring barrier. This is critical to assessing the hazardous potential of wastes remaining at the site because there is no subsurface layer to prevent migration of any remaining buried wastes to the water table.

Site Hydrogeology

The Cemetery Site lies within the headwater of the Shiawassee River Basin. The closest surface water body is Buckhorn Creek, located approximately 0.5 miles north of the site, which flows northeast for approximately 1 mile where it discharges into Lake Bremer.

The depth of the water table at the site is estimated to range from 35 to 40 feet. The contour of the water table is flat directly beneath the site which may be due to the very high permeability of the soils. The water table gradient apparently increases sharply to the east of the site and tends to parallel the ground surface topography which would mean that groundwater flows generally east-north easterly (See figure 3). Because of the flatness of the water table in the site area, it is possible the direction of groundwater flow may change in response to slight seasonal variations in water table elevations.

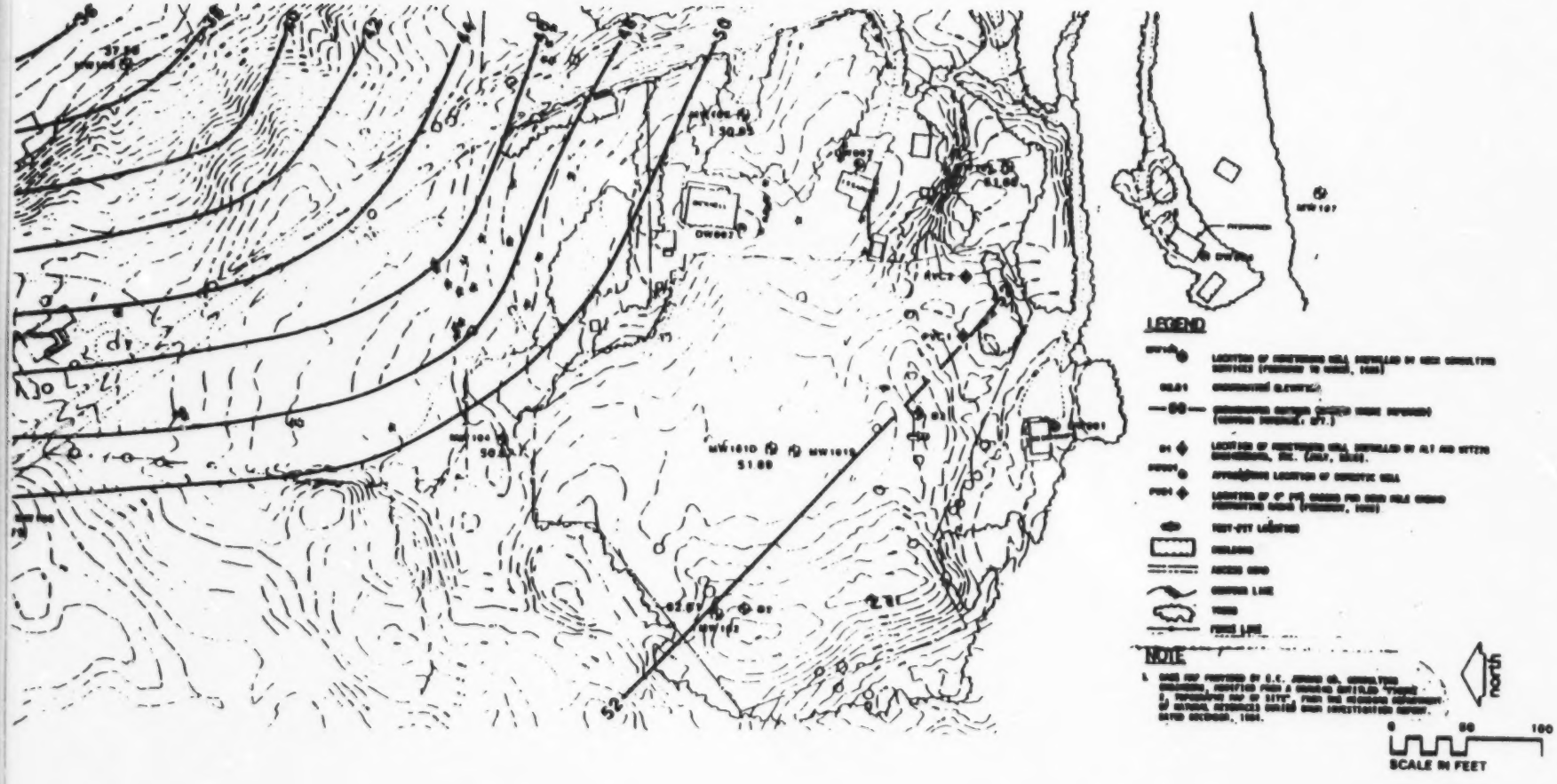


FIGURE 3
WATER TABLE MAP

Cemetery Site
Rose Township, Michigan

Post-Remediation Site Assessment

The Post-Remediation Site Assessment (PRSA) was conducted from early to mid 1989 to determine what residual contamination was left after the initial action at the site and to determine whether further action was necessary. As part of the PRSA report, a risk assessment was done to evaluate the level of risk to the human health and to the environment. Field activities, conducted by the MDNR, Michigan Department of Public Health (MDPH) and the U.S. EPA took place between 1980 and 1989, and involved groundwater and soil sampling in the area. This allowed the MDNR and the U.S. EPA to gather sufficient data to determine if the level of contamination at the site would have an adverse impact on the public health, welfare or the environment. This section summarizes a much more detailed analysis presented in the PRSA report.

A) Groundwater:

The groundwater investigation involved collecting samples from six private wells in addition to eleven monitoring wells (See figure 4). The groundwater analytical results showed apparently little impact of site contamination on groundwater quality (See Table 1). One of the monitoring wells located on the source area of the site, showed lead contamination exceeding primary Maximum Contaminant Levels (MCL) at 110 parts per billion (ppb) but it is inconsistent with the past findings and is questionable. The MCL for lead is 50 ppb. The subsequent sampling from the contaminated well showed lead concentration below the MCL. Furthermore, soil boring data on the contaminated monitoring well revealed lead concentrations within the background range for soils in the vicinity of the site (See Table 2). Zinc exceeded secondary MCLs (at 5000 ppb for Zinc) developed for taste and odor in the same monitoring well. Elevated zinc concentrations are most likely related to well construction materials. These levels are not health based levels. No other contaminants exceeded any established State or federal standards or criteria for drinking water.

Several of the six domestic private wells sampled showed low concentrations of toluene, bis (2 ethylhexyl) phthalate and phenol. Since they are not present in groundwater samples from monitoring wells in the disposal area, their presence in the private well samples is likely related to laboratory contamination or well-specific factors. In any event, the contaminant concentrations are all below the health based levels.

B) Soils:

Three types of soil samples were collected for analysis (See figure 5 for the sampling locations and Table 1 for the summary of the data). First, ten background (BS) soil samples were collected from areas surrounding the site to determine levels of constituents which may be naturally occurring in the area. Secondly, fifty (50) soil samples were collected from the bottom of the excavations (ES) to see if any contaminants have

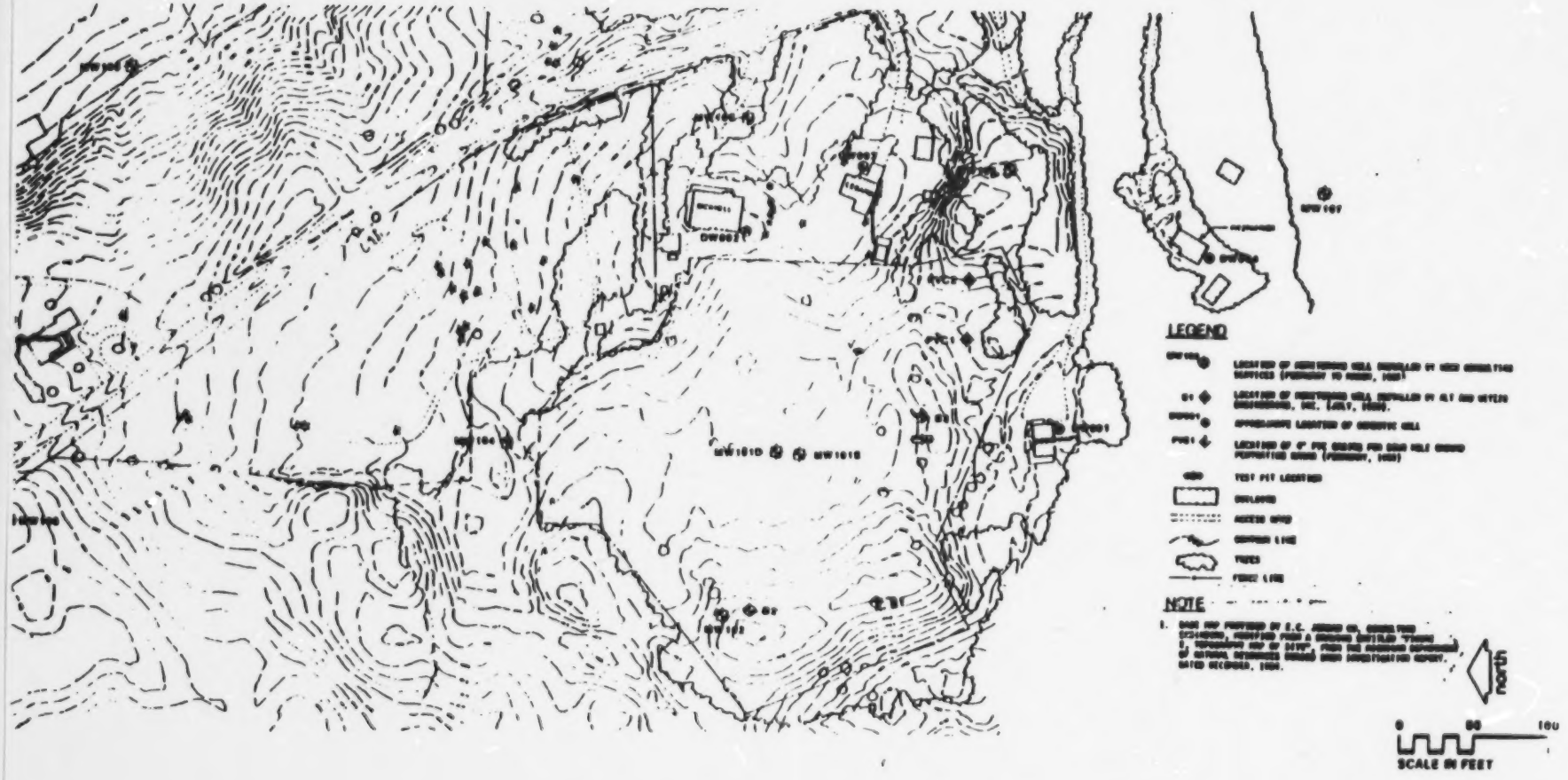


FIGURE 4
GROUNDWATER SAMPLE LOCATION MAP

Cemetery Site
Rose Township, Michigan

TABLE 1

ORGANIC AND INORGANIC ANALYTES
DETECTED AT THE ROSE TOWNSHIP CEMETERY SITE[a]
POST-REMEDIATION SAMPLING

Environmental Medium	Analyte	Analyte Concentration			Number of Locations Sampled for Analysis	
		Minimum	Maximum	Mean[b]	Total	Positive Detection
GROUNDWATER						
Private Wells	Volatile	ug/L	ug/L	ug/L	6	
	Toluene	0.6	1.0	0.8		3
	Semivolatile				6	
	Phenol	--	3.0	--		1
	bis(2-Ethylhexyl) phthalate	11.0	18.0	14.5		2
	Pesticide/PCB				6	
	None detected					
	Metal/CN				6	
	Aluminum	--	29.0	--		1
	Barium	27.5	86.3	57.3		6
	Cadmium	--	0.17	--		1
	Calcium	75700	114000	95500		6
	Chromium, total	--	6.7	--		1
	Copper	14.6	41.9	28.0		6
	Iron	23.8	2180	950		6
	Magnesium	22800	36800	30400		6
	Manganese	2.7	298	87.0		6
	Potassium	1260	1700	1500		3
	Sodium	5510	68300	19100		6
	Zinc	22.9	465	204		6
Monitoring Wells	Volatile				11	
	None detected					
	Semivolatile				11	
	None detected					
	Pesticide/PCB				11	
	None detected					

TABLE 1
(Continued)

Environmental Medium	Analyte	Analyte Concentration			Number of Locations Sampled for Analysis	
		Minimum	Maximum	Mean[b]	Total	Positive Detection
Monitoring Wells	Metal/CN	ug/L	ug/L	ug/L	11	
	Aluminum	--	275	--		1
	Arsenic	7.7	17.1	12.4		2
	Barium	28.3	243	164		10
	Calcium	9910	161000	92100		11
	Chromium, total	--	8.1	--		1
	Iron	174	791	438		3
	Lead	5.2	110	57.6		2
	Magnesium	21000	41000	32700		11
	Manganese	17.5	233	68.9		8
	Potassium	1100	2620	1480		7
	Sodium	2930	31900	9630		11
	Zinc	111	27000	5130		11
SOIL						
Background Samples (BS)	Volatile	ug/kg	ug/kg	ug/kg	10	
	Methylene chloride	[a] --	7.0	--		1
	Semivolatile				10	
	Di-n-octylphthalate	--	170	--		1
	Pesticide/PCB				10	
	None detected					
	Metal/CN	mg/kg	mg/kg	mg/kg	10	
	Aluminum	5880	16600	9810		10
	Antimony	10.5	47.4	26.0		10
	Arsenic	3.2	18.9	11.7		10
	Barium	21.1	215	67.9		10
	Beryllium	0.62	0.82	0.72		2
	Cadmium	1.3	5.1	3.1		10
	Calcium	1150	37300	8510		10
	Chromium, total	8.3	29.3	16.1		10
	Cobalt	2.6	10.4	6.2		10
	Copper	7.4	25.6	14.7		10
	Iron	6810	23700	13700		10
	Lead	6.8	13.7	10.3		10
	Magnesium	964	11900	4270		10
	Manganese	146	415	309		10
	Mercury	0.27	0.73	0.54		10
	Nickel	4.4	24.7	12.7		10
	Potassium	381	2340	1090		10
	Sodium	244	392	326		10
	Vanadium	13.7	37.3	23.6		10
	Zinc	29.0	66.1	43.5		10

TABLE 1
(Continued)

Environmental Medium	Analyte	Analyte Concentration			Number of Locations Sampled for Analysis	
		Minimum	Maximum	Mean[b]	Total	Positive Detection
Excavation Verification Samples (ES)	Volatile	ug/kg	ug/kg	ug/kg	50	
	Acetone	37.0	150	71.7		4
	Carbon disulfide	2.0	3.0	2.5		2
	Chloroform	1.0	2.0	1.7		4
	1,1,1-Trichloroethane	--	1.0	--		1
	Toluene	2.0	26.0	11.8		9
	Ethylbenzene	0.7	2.0	1.2		4
	Xylenes, total	2.1	10.0	4.0		5
	Semivolatiles				34[c]	
	Phenol	--	62.0	--		1
	Di-n-butylphthalate	140	190	165		2
	bis(2-Ethylhexyl) phthalate	82.0	650	220		6
	Pesticide/PCB				50	
	4,4-DDE	--	9.0	--		1
	4,4-DDD	--	14.0	--		1
	4,4-DDT	--	210	--		1
	Aroclor 1248	--	71.0	--		1
	Aroclor 1254	38.0	1300	202		11
	Metal/CN	mg/kg	mg/kg	mg/kg	50	
	Aluminum	2270	10900	3790		50
	Arsenic	4.1	30.5	7.4		50
	Barium	8.1	37.8	16.6		49
	Beryllium	0.25	0.6	0.35		12
	Cadmium	0.65	1.0	0.78		5
	Calcium	8570	165000	95800		50
	Chromium, total	5.3	15.6	8.5		50
	Cobalt	2.8	7.4	4.4		50
	Copper	9.6	21.5	13.8		50
	Iron	5820	15600	9320		50
	Lead	3.4	46.3	8.4		50
	Magnesium	3100	31300	20700		50
	Manganese	234	466	328		50
	Nickel	7.3	15.5	10.4		50
	Potassium	324	1010	517		50
	Silver	--	0.86	--		1
	Sodium	238	455	312		12
	Thallium	0.42	0.84	0.51		11
	Vanadium	8.1	25.6	12.2		50
	Zinc	30.1	84.1	42.3		50

TABLE 1
(Continued)

Environmental Medium	Analyte	Analyte Concentration			Number of Locations Sampled for Analysis	
		Minimum	Maximum	Mean[b]	Total	Positive Detection
Potential Backfill Samples (HS)	Volatile	ug/kg	ug/kg	ug/kg	12[d]	
	Methylene chloride	6.0	44.0	24.0		10
	Semi-volatile				4	
	Isophorone	--	310	--		1
	Di-n-octylphthalate	70.0	150	110		2
	Pesticide/PCB				4	
	4,4-DDE	--	25.0	--		1
	4,4-DDT	--	35.0	--		1
	Gamma-chlordane	--	160	--		1
	Aroclor 1254	--	240	--		1
	Metal/CN	mg/kg	mg/kg	mg/kg	4	
	Aluminum	4700	6480	5370		4
	Antimony	24.5	44.1	32.8		4
	Arsenic	1.4	10.4	7.7		4
	Barium	16.7	30.1	20.9		4
	Cadmium	2.9	3.3	3.1		4
	Calcium	113000	192000	163000		4
	Chromium, total	10.8	15.7	12.5		4
	Cobalt	3.8	5.5	4.8		4
	Copper	17.0	22.4	18.9		4
	Iron	10500	12300	11400		4
	Lead	1.1	18.4	8.4		4
	Magnesium	30000	50000	37500		4
	Manganese	459	581	525		4
	Mercury	0.54	0.84	0.55		4
	Nickel	12.5	14.2	13.3		4
	Potassium	714	1280	1010		4
	Sodium	435	1040	615		4
	Vanadium	14.6	15.6	15.0		4
	Zinc	44.4	82.5	56.3		4

TABLE 1 (continued)

NOTES

[a] Data sources include groundwater samples collected in March, 1989 by Warzyn and soil samples collected in December, 1988 by Chemical Waste Management, Inc. Refer to Appendices A through E to determine total analytes and detection limits.

[b] Arithmetic mean was calculated by incorporating data only from samples where the analyte was detected. Thus, sample values for analytes not detected were not included. Data from trip blanks, sample blanks and duplicate samples were also not included in the mean. Both unqualified data and data qualified as estimated were used in the calculations.

[c] Soil samples from sixteen ES locations sent to Radian for total organic compound analysis were not analyzed for the semivolatile fraction.

[d] Volatile organic chemical analysis was performed on three independent samples from four potential backfill (NS) locations. The samples in other analyte fractions were composite samples (three grab samples) from four (NS) locations.

TABLE 2

ELEMENTAL COMPOSITION OF SOILS
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
ROSE TOWNSHIP - DEMODE ROAD SITE, MICHIGAN[a]

Element	Background Concentrations of Elements in U.S. Soils (mg/kg)[b] Range	Median	Background Concentrations of Elements in Soils at the Rose Township Site (mg/kg)[e] Range	Median
Aluminum	70-100,000	66,000	0-7,455	4,246.2
Antimony	0.2-10[d]	1	---	0
Arsenic	1-50[c]	5	1.0-13.5	3.5
Barium	15-5,000[c]	554	18-87	42
Beryllium	0.01-40	6	0-1.0	0.44
Cadmium	0.01-7	0.06	0-0.1	0.13
Chromium	1-15,000[c]	53	4-11.5	7.7
Cobalt	<3-70	10	0-6.5	3.5
Copper	<1-300	25	4-27.5	12.3
Iron	100-100,000	25,000	2,854-13,265	6,603
Lead	2-200[c]	10	4-15	9.5
Manganese	<1-7,000	560	21.5-1,179	313.6
Mercury	0.01-4.6	0.112	0-0.1	0.02
Nickel	<5-70	20	2.8-13	6.8
Selenium	0.1-2[c]	0.3	0-0.1	0.1
Silver	0.01-5[c]	0.05	0-0.7	0.1
Thallium	0.1-0.8[d]	0.2	---	0
Tin	2-200[c]	10	0-6.0	1.0
Vanadium	<7-500	76	0-16.5	7.2
Zinc	<25-2,000	54	12.5-35	23.8

[a] Table taken from RI/FS - Rose Township-Demode Road Site, Michigan.

[b] Source for all data except those marked: Ure, A.M. and M.L. Berrow, 1982. The Element Constituents of Soils in Environmental Chemistry, H.J.M. Bowen, ed., 2:94-204.

[c] Lindsay, Willard L., 1979. Chemical Equilibria in Soils, Wiley Interscience, New York, pp. 7-8.

[d] Bowen, H.J.M., 1982. Environmental Chemistry. The Royal Soc. of Chemistry, London, pp. 203-204.

[e] Based on statistical analysis of the following surface soil grab sample population: SEDA-10, 13, 14, 15, 16, 20, 21, 22, 27, 28, 33, 40, 46.

remained. Finally, a composite of five (5) grab samples for inorganics and a grab sample for organics and volatile organics were taken from each non-visually contaminated soil stockpile to determine if these soils are acceptable for use as backfill material (NS samples).

Several constituents of the pesticides/PCB organic chemical fraction were detected in NS and ES soil samples. Most consistently identified were the PCBs, particularly AROCLOR 1254. The maximum PCB concentration detected in soils is approximately ten fold less than the Toxic Substances Control Act (TSCA) cleanup level guideline of the 10 mg/kg. DDT and its metabolites (DDE and DDD) were identified in two soil samples, while the pesticide gamma-chlordane was identified in one soil sample.

For reasons of suspect laboratory or sampling artifact, low sample concentrations, low frequency of occurrence in soil samples and their absence in groundwater samples, volatile and semi-volatile organic compounds were not considered to represent appreciable residual site contamination.

Risk Assessment

Based on the location of contaminated media at the site and current land use activities at the site, two potential pathways exist for contaminant exposure:

1) Direct exposure to contaminated soils; and

2) Exposure via groundwater should contaminants leach to the aquifer and migrate to private wells.

Groundwater has not been impacted by site contamination. Low levels of organic compounds commonly associated with analytical laboratories (toluene, methylene chloride, phthalates) were identified in some residential well samples. Based on their inconsistent presence in groundwater samples from past sampling events, their absence in soil samples, and their presence in laboratory method blanks, these compounds were not considered to be characteristic of groundwater quality. In addition, average toluene concentrations in groundwater samples from domestic wells (<1.0 ug/l) are far below proposed federal standards (Proposed MCL, 2000 ug/l). Similarly, lead was identified inconsistently in groundwater and soil samples, and not considered representative of site contamination. Elevated zinc concentrations identified only in monitoring well samples are most likely related to well construction materials.

Potential health risk resulting from direct contact with soils was also estimated to be low. PCBs were consistently identified in soil samples from the excavation. As established under the Toxic Substances Control Act (TSCA), contamination of soils with PCBs must be remediated to specified cleanup levels. Currently, these levels are 10 mg/kg and 25 mg/kg for unrestricted and restricted access sites, respectively. The maximum PCB concentration

detected in ES soil was approximately 10-fold less than the 10 mg/kg guideline. DDT is very immobile and was found in extremely low concentrations. Therefore, the potential for migration to groundwater is very low. The only potential for any risk would be from dermal contact with the soil. With the backfilling of the excavations, the potential pathway would be eliminated.

The site is restricted to some extent by fencing, thus limiting exposure potential to a population of potential trespassers, which is assumed to be very small.

In summary, the risk assessment concluded that there is a minimal risk to the human health or the environment. Therefore, it was concluded that taking no further action is the preferred alternative.

Documentation of Significant Changes

There are no significant changes from the preferred alternative described in the proposed plan.

The Selected Remedy

The findings of the PRSA show that the previous remedial action was adequate to ensure protection of human health and the environment, and that no unacceptable risk remains at the site. For backfilling of the pits that were present at the site, the stockpiled soils have been used in such a manner that the low levels of PCBs found in one of the soil samples were sandwiched in the middle between the two layers of clean soil imported from the outside source areas. This provided an added measure of protectiveness at no additional cost. It is also recommended that the fence now in existence stay up for the additional protection for at least five years. The site will be revisited after five years to ensure that the site continues to pose no threat to the human health and the environment. In the interim, the private wells and the monitoring wells, previously sampled, will be monitored annually. At the same time, the delisting process will be started since no contaminants were left at the site above the health based levels. The continuance of the monitoring program will be assessed after five years, and every five years thereafter until both U.S EPA in consultation with MDNR is completely satisfied that the site poses no risk to human health and the environment.

Statutory Determinations

Cost effectiveness and utilization of permanent solutions and alternative treatment technologies, while applicable, do not need to be developed for the no further action alternative.

Protection of Human Health and the Environment/ARARs

Lead for one of the monitoring well samples exceeded the primary MCL of 50 ppb

but it is inconsistent with the past findings and the subsequent sampling produced a lead concentration below that of the MCL. Furthermore, soil boring data on the contaminated monitoring well revealed lead concentrations within the background range for soils in the vicinity of the site. For these reasons, lead is not considered a threat to human health and the environment.

Zinc in some groundwater monitoring well samples exceeded the Federal Secondary MCL of 5000 ppb for drinking water. However, this is a non-enforceable standard based on taste and odor, not protection of health. Furthermore, the elevated concentrations in monitoring well samples are probably related to the use of galvanized pipe for construction of these wells.

Other than the Secondary MCL for zinc, no Federal or State environmental standards are exceeded at the site. Therefore, applicable or relevant and appropriate requirements (ARARs) have been met.

ATTACHMENT II

Community Relations Responsiveness Summary
Rose Township Cemetery Site
Rose Township, Michigan
September, 1989

The purpose of this community relations responsiveness summary is to document the community relations activities along with citizen comments and Agency responses. The Michigan Department of Natural Resources (MDNR) has been responsible for conducting a coordinated community relations program for this site.

The selected remedy of no further action was presented in the August 14, 1989 Proposed Plan and at the public hearing. There has been no negative public reaction to the selected remedy before or during the comment period. The State of Michigan concurs with the Agency's decision.

COMMUNITY RELATIONS

The dates of the public comment period, the date and the location of a public hearing were announced through a legal notice in the local newspaper.

The Rose Township Cemetery Site Proposed Plan, which includes a description of the investigation findings and conclusions was available along with the Administrative Record at the Rose Township Hall, Rose Township, Michigan and the Holly Library, Holly, Michigan.

The public hearing was held at the Rose Township Hall at 2006 Rose Center Road on Wednesday, August 23, 1989 to discuss the Remedial Investigation and the preferred alternative. Approximately thirty people were at the hearing. Following presentations by MDNR, several people expressed comments.

Comments raised during the public comment period, which are relevant to the Proposed Plan, are summarized below. The comment period was held from August 14 to September 11, 1989.

SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSE

Comment: Several commenters wanted to know when the excavated pits from the first operable unit remedial action will be backfilled.

EPA Response: Just recently the excavated pits have been backfilled and leveled off to original contours.

Comment: One commenter wanted to know what remained 30 feet underground, and surmised that there are barrels under there.

EPA Response: At the bottom of all the excavations, MDNR screened for any metals using a metal detector. After the testing, it was determined that there were no metal objects buried to a depth of 50 feet. Also, soil borings

were taken to the depth of 75 feet and no contaminants were detected above the health based levels.

Comment: One of the commenters wanted to find out why the suspect laboratory samples weren't resampled.

EPA Response: The trip blank samples are taken to see if any contamination originates from the field or from the laboratory. If the trip blank samples show similar type of contamination as the actual field samples, then it can be stated with confidence that the contamination originated from the laboratory.

Comment: One of the commenters was concerned about the DDT that was found after all the excavation was done.

EPA Response: DDT is very immobile and was found in extremely low concentrations. Therefore, the potential for migration to groundwater is very low. The only potential for any risk would be from dermal contact with the soil. With the backfilling of the excavations, the potential pathway would be eliminated.

Comment: One commenter asked if a site can be delisted while a monitoring program is conducted by the MDNR.

EPA Response: The deletion process can start when based on a remedial investigation, EPA, in consultation with the State, has determined that the release poses no significant threat to public health and the environment and, therefore, taking of remedial measures is not appropriate. This is the case at the site and therefore, the deletion process can be initiated while the monitoring program is conducted by the MDNR.

Comment: Another commenter was concerned about the PCBs that were found at the site.

EPA Response: The PCB concentration levels are far below the cleanup levels established under the Toxic Substances Control Act. Also, the low levels found will be sandwiched in the middle by the imported clean soil during the backfilling of the pits. PCBs are very immobile and the risk assessment concludes that exposure to these low levels does not pose a risk to human health.

Comment: One commenter wanted to know why the site is still on the National Priorities List when the site is no longer a problem.

EPA Response: Any sites that are on the National Priorities List have to undergo a formal deletion process before they are removed from the list.

Comment: One of the commenters asked why MDNR is continuing to test the wells for five years when the site is no longer a problem.

EPA Response: The current data indicate that the site no longer poses any

risk to the human health or the environment. The additional monitoring will provide extra assurances and confirmation to that effect. As always, it is of the utmost importance to both U.S. EPA and MDNR that public health is well protected.

Comment: Another commenter was concerned about low levels of chromium and nickel found in the background soil samples.

EPA Response: Low levels of chromium and nickel are naturally occurring in the area at levels far below the health based levels.

Comment: One commenter wanted to know why the responsible parties were not actively pursued and held liable for any costs incurred at the site.

EPA Response: Both U.S. EPA and MDNR will be looking at the possibility of recovering the funds. Evidence regarding the liability and solvency of potentially responsible parties is currently being evaluated.

Comment: One of the commenters wanted to extend the comment period.

EPA Response: After further communication with the commenter, the request for extension to the comment period was withdrawn. The commenter was apprised of the comment period during the deletion process, and was supplied with the EPA guidance on the NPL deletion process.

Administrative Record
Index not included.

ATTACHMENT III